

Consumer Confidence Report
January 1, 2011 - December 31, 2011
Andersen Air Force Base, Guam

Your Water is Safe to Drink!

This is the 2011 annual report on the quality of Andersen Air Force Base drinking water. The *Consumer Confidence Reporting Rule* of the federal Safe Drinking Water Act (SDWA) requires this information be provided to the public. This report includes information on the source of our water, surveillance performed by the Bioenvironmental Engineering (36 MDOS/SGOAB) office and health risks associated with any contaminants that were found. This report contains technical language required by the Environmental Protection Agency (EPA), designed to further public understanding about public water systems and potential hazards.



All drinking water (both tap and bottled) begins as rivers, lakes, streams, ponds, reservoirs, springs, and aquifers. As water travels over the surface or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from animals or from human activity. Some of these substances have undesirable or harmful properties and are considered contaminants, restricted by federal law to be below certain levels. At Andersen Air Force Base, Bioenvironmental Engineering constantly monitors the quality of drinking water by testing water for the following: (A) Harmful microbes which show contamination from sewage treatment plants, septic systems, agricultural livestock operations and wildlife. (B) Inorganic contaminants, such as salts and metals, indicating contamination from industrial or domestic wastewater discharges, oil and gas production, mining, or farming. (C) Pesticides and herbicides, which come from agriculture, urban storm water runoff, and residential uses. (D) Organic chemical contaminants, including synthetic and volatile organic chemicals from industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems. (E) Radioactive contaminants, which can be elevated by oil production or mining activities. (F) Secondary Safe Drinking Water Contaminants, which are established only as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color and odor. These contaminants are not considered to present a risk to human health at the Secondary Maximum Contaminant Level (SMCL).

While EPA regulates water provided by public water systems, the Food and Drug Administration regulates bottled water and establishes limits for contaminants. Bottled water on Andersen is approved by Public Health (36 MDOS/SGOAH). Approved drinking water (taps and bottled) will still contain small amounts of substances at levels which do not pose a health risk. For more information about contaminants and potential health effects, call the Bioenvironmental Engineering Element at 366-7166. You can also call the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

We continually monitor the drinking water for contaminants. Our water is safe to drink. However, as with any water supply, some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be at greater risk of illness. These people should seek advice about drinking water from their health care providers.



The EPA and Center for Disease Control and Prevention (CDC) provide guidance to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants. For more information, call the Safe Drinking Water Hotline at 1-800-426-4791. You may also contact Mr. Angel B. Marquez, Safe Drinking Water Program Director at 475-1638 or visit Guam Environmental Protection Agency's website at <http://epa.guam.gov/programs/water/safe-drinking-water>.

Where does Andersen AFB's drinking water come from?

Primary Source. Andersen AFB provides drinking water to all base housing and facilities from the Northern Guam Lens aquifer which is a groundwater source underlying the northern portion of Guam. This northern lens was designated a principle sole-source aquifer by the USEPA in 1978, under the provisions of the SDWA.

Alternate Sources. In the event of contamination of the groundwater aquifer or water system, base demand may be partially met by water sharing agreements with US Navy and Guam Water Authority, on-base treatment of local surface waters, bottled water supply, water trucks, and rationing.



Is our drinking water treated?

Drinking water drawn from groundwater sources such as ours is inherently better quality than that drawn from surface water sources. This is because the ground acts as a natural filter to remove particulates and contaminants. All of our drinking water is treated with chlorine and fluoride to ensure the health of every consumer. Chlorine acts as a disinfectant to reduce bacterial contamination. Fluoride is added at sufficient levels as recommended by the American Dental Association to prevent dental caries (cavities). It is maintained at levels low enough to prevent dental and skeletal fluorosis, especially in children.



Who monitors drinking water on Andersen?

Andersen AFB's drinking water is managed by two base agencies. Civil Engineering (36 CES/CEOIU) manages the maintenance and operations of the drinking water supply and distribution system. Bioenvironmental Engineering (36 MDOS/SGOAB) monitors the quality of the drinking water provided to consumers and addresses any related health concerns.

At Andersen AFB, Bioenvironmental Engineering monitors the contaminant groups using EPA-certified laboratories and approved methods.

Does our water meet National Primary Drinking Water Regulations?

Andersen AFB is in compliance with all federal, Department of Defense and Guam drinking water regulations. To ensure your drinking water is of the highest quality, Bioenvironmental Engineering collected many samples and had them analyzed for various contaminants. The contaminants presented on the following table are those that were monitored from January to December during 2011. If a substance was not required to be sampled during 2011, the results of earlier testing are provided.

Analyte Groups and Monitoring Frequency Table

Analyte/Contaminant Group	Monitoring Frequency
Microbiological Contaminants	Eleven locations monthly
Nitrate	Annually
Stage 2 Disinfectants and Disinfection Byproducts (D/DBP)	Annually
Volatile Organic Contaminants (VOCs)	Annually
Copper	Once every 3 years
Lead	Once every 3 years
Inorganic Contaminants (IOCs)	Once every 3 years
Synthetic Organic Contaminants (SOCs)	Once every 3 years
Sodium	Once every 3 years
Fluoride	Once every 3 years
Radio-chemicals (Gross Alpha Particle Activity)	Once every 4 years
Radio-chemicals (Radon)	Annually (Proposed Rule)
Sulfate	Once every 5 years
Nitrite	Once every 9 years
Asbestos	Once every 9 years
Guam Secondary Safe Drinking Water Contaminants	Once every 3 years
Arsenic	Once every 3 years

Detected Contaminants

The following table presents the results of monitoring for the reporting period of Jan –Dec 2011 (PWS ID GU0000009). Analyte groups that are not present on table were below lab detection levels.

Andersen Air Force Base was notified that it was in violation for 40 CFR 141.63(a) Maximum contaminant levels (MCLs) for microbiological contaminants. Andersen received two consecutive positive water samples for total coliform bacteria on the 18th and 19th of October 2011. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other; potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems. Personnel in the affected area were notified immediately upon determination that the MCL had been exceeded. Additionally, Andersen water system technicians began a system flushing plan to alleviate stagnate water in the system which was most likely cause of this incident. Repeat sampling indicated the drinking water was compliant and returned to a safe to drink status. For more information please call 366-7166.

Contaminant	MCLG	MCL	Amount Detected	Units	Sample Date	Exceeded Standard	Likely Source of Contamination
Microbiological Contaminants							
Total Coliform Bacteria	0	1 Positive	1 Month	Presence/Absence	19 Oct 2011	Yes	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
Fecal Coliform and E. Coli	0	1 Positive	0	Presence/Absence	N/A	No	Human and animal fecal waste.
Radiological Contaminants							
Radon 222 (Proposed Rule)	0	4000	51.6 - 733 Avg- 299.2	pCi/L	17 Aug 2011	No	Break down product of natural deposits of uranium
Gross Alpha Emitters	0	15	2.2 – 8.8	pCi/L	20Apr 2011 22 Jun 2011	No	Naturally present in the environment as a decay by-product.

Radium 226	0	5	1.6 – 3.1	pCi/L	20Apr 2011 22 Jun 2011	No	Naturally present in the environment as a decay by-product.
Radium-228	0	5	0.06 – 1.3	pCi/L	20Apr 2011 22 Jun 2011	No	Naturally present in the environment as a decay by-product.
Uranium, Total	0	30	1.66 – 3.9	µg/L	20Apr 2011 22 Jun 2011	No	Naturally present in the environment as a decay by-product.

Contaminant	MCLG	MCL	Amount Detected	Units	Sample Date	Exceeded Standard	Likely Source of Contamination
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Stage 2 Disinfectants and Disinfection Byproducts (D/DBP)

Total Trihalomethanes (TTHM)	N/A	80	0.5 - 24.3	ppb	20 Aug 2011	No	By-product of drinking water chlorination.
Chloroform	70	N/A	3.4	ppb	20 Aug 2011	No	By-product of drinking water chlorination.
Bromodichloromethane	0	80	0.6 - 2.1	ppb	20 Aug 2011	No	By-product of drinking water chlorination.
Dibromochloromethane	60	80	1.7 - 7.2	ppb	19 Aug 2011	No	By-product of drinking water chlorination.
Bromoform	0	80	3.9 - 15	ppb	20 Aug 2011	No	By-product of drinking water chlorination.
Haloacetic Acids (HAA5)	N/A	60	1.7 - 7.3	ppb	19 Aug 2011	No	By-product of drinking water chlorination.
Dichloroacetic acid	0	60	1.1	ppb	19 Aug 2011	No	By-product of drinking water chlorination.
Dibromoacetic acid	N/A	60	1.7 - 3.1	ppb	19 Aug 2011	No	By-product of drinking water chlorination.
Disinfectant	MRDLG	MRDL	Amount Detected	Units	Sample Date	Exceeded Standard	Source of Disinfectant
Chlorine, Residual	4.0	4.0	0.2 - 2.0	ppm	15 Mar 2011 29 Jun 2011 30 Sep 2011 27 Dec 2011	No	By-product of drinking water chlorination.
Contaminant	MCLG	MCL	Amount Detected	Units	Sample Date	Exceeded Standard	Likely Source of Contamination

Lead and Copper

Lead	0	15	2.9	ppb	3 Aug 2010	No	Corrosion of household plumbing systems; Erosion of natural deposits.
Copper	1.3	1.3	0.350	ppm	3 Aug 2010	No	Corrosion of household plumbing systems; Erosion of natural deposits; leaching from wood preservatives.

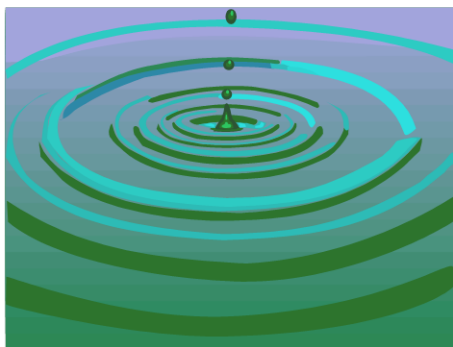
Inorganics

Chromium	100	100	7 - 11	ppb	15 Aug 2011	No	Discharge from steel and pulp mills; erosion of natural deposits.
Fluoride	4	4	0.740	ppm	15 Aug 2011	No	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories.
Arsenic	N/A	10	ND	ppb	15 Aug 2011	No	Naturally present in the environment.
Contaminant	MCLG	MCL	Amount Detected	Units	Sample Date	Exceeded Standard	Likely Source of Contamination
Other Inorganics							
Asbestos	7	7	0.188 – 1.129	MF/L	27 Aug 2011	No	Decay of asbestos cement in water mains; erosion of natural deposits.
Sodium	N/A	N/A	34 – 35	mg/L	23 Aug 2011	N/A	Erosion of natural deposits.
Sulfate	N/A	250	8.3 – 13	ppm	17 Aug 2011	N/A	Naturally present in the environment.
Tetrahydrofuran	N/A	N/A	5.6	ppb	26 Apr 2011	N/A	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Nitrate-N	10	10	0.7 - 1.4	mg/L	16 Aug 2011	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Guam Secondary Safe Drinking Water Contaminants							
Contaminant	MCL		Amount Detected	Units	Sample Date	Exceeded Standard	Likely Source of Contamination
Chloride	250		53 – 62	mg/L	15 Aug 2011	No	Almost all natural waters contain chloride and sulfate ions. The concentrations vary considerably according to the mineral content of the earth in any given area.
Total Dissolved Solids	500		300 – 340	mg/L	16 Aug 2011	No	TDS in drinking-water originate from natural sources, sewage, urban run-off, industrial wastewater, and chemicals used in the water treatment process, and the nature of the piping or hardware used to convey the water, i.e., the plumbing.
Sulfate	250		8.3 – 13	mg/L	17 Aug 2011	No	A combination of sulfur and oxygen and are a part of naturally occurring minerals in some soil and rock formations that contain groundwater. The mineral dissolves over time and is released into groundwater.

Additional Information on Radon

There is currently no federally-enforced drinking water standard for radon. EPA proposed new regulations to reduce the public health risks from radon on November 2, 1999 in the Federal Register. The proposed maximum contaminant level (MCL) is 4000 pCi/L for radon. Andersen AFB is in full compliance with the proposed standard. Some people who drink water containing radon in excess of the proposed MCL over many years could experience an increased risk of stomach cancer. For additional information, call your state radon program or call EPA's Radon Hotline, 1-800-SOS-RADON.

Definitions of Key Terms



To gain a better understanding the report content, we have provided definitions of several key terms:

Maximum Contaminant Level (MCL)- The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG)- The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level Goal (MRDLG)- The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Maximum Residual Disinfectant level or (MRDL)- The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Additional Acronyms/Terms Used In This Report

Below is a listing of acronyms and terms used in this Consumer Confidence Report:

mg/L: milligrams per liter; a unit of measure equivalent to part per million (ppm)

µg/L: micrograms per liter; a unit a measure equivalent to part per billion (ppb)

ppm: parts per million; a unit of measure equivalent to a single penny in \$10,000

ppb: parts per billion; a unit of measure equivalent to a single penny in \$10,000,000

MF/L: million fibers per liter for fibers greater than 10 micrometers in length

pCi/L: pico Curies per liter (a Curie is the measurement of radioactivity)

ND: Non-Detect (Contaminant levels are below detection capabilities)

CFU: Colony Forming Units.

TON: Threshold Odor Number

CN: Color Units

LRAA: Locational Running Annual Average

CCR: Consumer Confidence Report

SDWA: Safe Drinking Water Act; Federal law which sets forth drinking water regulations

Level Detected: laboratory analytical result for a contaminant can be an average value; this value is evaluated against an MCL to determine compliance.

Range: the range of the highest and lowest analytical values of a reported contaminant. For example, the range of reported analytical detections for an unregulated contaminant may be 10.1 ppm (lowest value) to 13.4 ppm (highest value). EPA requires this range to be reported.

Public Involvement

Team Andersen is committed to ensuring the quality of Andersen's drinking water to the highest standards possible. Public queries and additional information regarding this report can be obtained by contacting the Andersen Public Affairs office at (671) 366-4202. This report can be accessed on the Andersen Air Force Base web page after July 2012. Printed copies of this report can be obtained at the base library. For electronic copies, please contact Bioenvironmental Engineering at 366-7166.

